

Patent claims

1. A power supply having a first and a second switch-mode power supply unit (I, II), which has a normal operation,
5 in which both switch-mode power supply units (I, II) are in operation, and a standby operation, in which the first switch-mode power supply unit (I) is switched off by a control voltage (Us), **characterized** in that the control voltage (Us) is used in standby operation for
10 reducing the switching frequency of the second switch-mode power supply unit (II).
2. The power supply as claimed in claim 1, characterized in that the control voltage (Us) is transmitted via an
15 optocoupler (OK1) together with the regulating voltage (Url) for the first switch-mode power supply unit (I) from the secondary side to the primary side.
3. The power supply as claimed in claim 1 or 2,
20 characterized in that the first switch-mode power supply unit (I) includes a driver stage (IC1), in particular with an integrated circuit, which has a first output (COMP1) having a higher voltage during the normal operation than during the standby operation, and in that
25 said output (COMP1) is connected to an oscillator input (OSC1) of the second switch-mode power supply unit (II) for reducing the switching frequency of the second switch-mode power supply unit (II) in standby operation.
- 30 4. The power supply as claimed in claim 3, characterized in that the first output (COMP1) of the driver stage (IC1) is the output of an error amplifier of an integrated circuit (IC1), and in that said output (COMP1) is connected via a resistor (R4) to a capacitor (C2) of the
35 oscillator of the second switch-mode power supply unit

(II) for reducing the oscillation frequency of the oscillator of the second driver stage (IC2).

5. The power supply as claimed in one of the preceding
5 claims, characterized in that a second output (OUT1) of the driver stage (IC1) of the first switch-mode power supply unit (I), which drives the switching element (T1) of the first switch-mode power supply unit (I), is coupled by a series circuit, having a current limiting
10 means (C3, R3) and a rectifier means (D3), to an oscillator input (OSC2) of the driver stage (IC2) of the second switch-mode power supply unit (II) for synchronizing the second switch-mode power supply unit (II).
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6. The power supply as claimed in claim 5, characterized in that the output (OUT1) of the integrated circuit (IC1) which drives the switching element (T1) of the first switch-mode power supply unit (I) is connected by the
20 series circuit (C3, R3, D3) to the capacitor (C2) of the oscillator of the second switch-mode power supply unit (II).
7. The power supply as claimed in claim 5 or 6,
25 characterized in that an output (OUT2) of the second driver stage (IC2), which drives the switching element (T2) of the second switch-mode power supply unit (II), is connected by a switching stage (T5, R5, R6) to the series circuit (C3, D3) for increasing the pulse width
30 ratio.
8. The power supply as claimed in claim 7, characterized in that the switching stage (T5, R5, R6) has a switch, in particular a transistor (T5), which turns off if the
35 voltage of the output (OUT2) of the second driver stage (IC2) turns off the switching transistor (T2) connected

downstream, and which is at low impedance on the output side if the output voltage of the second driver stage (IC2) is high.

- 5 9. The power supply as claimed in claim 7 or 8, characterized in that the switching stage (T5, R5, R6) blocks signals of the series circuit (C3, R3, D3) if the output voltage (OUT2) of the second driver stage (IC2) is high.
- 10 10. The power supply as claimed in one of the preceding claims, characterized in that the first and second switch-mode power supply units (I, II) in each case have a transformer (TR1, TR2) having a primary winding (W1, W2) and at least one secondary winding (W3 - W6), a
- 15 switching element (T1, T2) coupled to one of the primary windings (W1, W2), and a driver stage (IC1, IC2) in respect thereof, and in that both switch-mode power supply units (I, II) preferably operate according to the
- 20 flyback converter principle.
11. The power supply as claimed in one of the preceding claims, characterized in that the control voltage (Us) is coupled to a control input (VIN1) of the first
- 25 switch-mode power supply unit (I) and an oscillator input (OSC2) of the second switch-mode power supply unit (II).